



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

H.A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,148	09/27/2004	Jan Tue Ravnkilde	GRP-0082	5091
23413	7590	09/15/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			FANG, JERRY C	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/509,148	Applicant(s) RAVNKILDE ET AL.	
	Examiner Jerry Fang	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/3/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> . |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 8-11, 17-23, 27-30, 32, and 33-35 are rejected under 35 U.S.C. 102(a) as being anticipated by Flanders et al. (US 6,671,078).

Regarding claim 1, Flanders discloses at least one light transmission path (Fig. 2, 116) and at least one controllable shutter (Fig. 2, 114) arranged for modulation of light transmitted via said at least one light transmission path; at least a part of said light transmission path comprising a translucent modulator substrate (Col. 4, Lines 4-9); and said at least part of said light transmission path being an integral part of a substrate to which said at least one controllable shutter is anchored (Fig. 2).

Regarding claim 8, Flanders discloses wherein said one light transmission path is a part of a substrate to which the at least one controllable shutter is anchored (Fig. 2).

Regarding claim 9, Flanders discloses said shutter being controlled by electrical activation means (Col. 1, Line 62 – Col. 2, Line 2).

Regarding claim 10, Flanders discloses said shutter comprising a mechanical blade which may be moved between at least two positions (Fig. 2, 114), and said blade in one of said at least two positions blocking transmission of light via said at least a part of said light transmission path (Col. 4, Lines 53-56).

Regarding claim 11, Flanders discloses said shutter blade performing a sliding movement with respect the substrate forming said transmission path (Fig. 1A).

Regarding claim 17, Flanders discloses at least one blade movable between at least two positions via at least one movement path (Fig. 2, 114); a microshutter comprising electrode means for activating movement of said at least one blade between said at least two positions and for positioning the at least one blade in one of said at least two positions (Fig. 2, 110); and said electrode means being arranged out of reach of the at least one blade and a beam in one of said at least two positions (Fig. 1B).

Regarding claim 18, Flanders discloses wherein a translucent light transmission path comprises a part of at least one microlens (Fig. 2, 122).

Regarding claim 19, Flanders discloses wherein said light modulator is located on said at least one translucent substrate and said light modulator is arranged for modulation of light through said at least one translucent substrate via said at least a part of said light transmission path (Fig. 2).

Regarding claim 20, Flanders discloses wherein said substrate, forming said at least one light transmission path, forms at least one microlens (Fig. 2, 122).

Regarding claim 21, Flanders discloses wherein at least one microlens is adapted to focusing light on at least one micro-shutter (Fig. 2, 122).

Regarding claim 22, Flanders discloses wherein said micro light modulator comprises at least one further set of microlenses (Fig. 2, 124).

Regarding claim 23, Flanders discloses wherein said at least one further set of microlenses are arranged as at least one separate layer (Fig. 2).

Regarding claim 27, Flanders discloses wherein said micro light modulator arrangement comprises at least one blade movable between at least two positions via

at least one movement path (Fig. 2, 114); and electrode means for activating movement of said at least one blade between said at least two positions and for positioning the at least one blade in one of said at least two positions (Fig. 2, 110); said electrode means being arranged out of reach of the at least one blade when the blade moves along said at least one movement path (Fig. 1B, 110).

Regarding claim 28, Flanders discloses wherein a connection portion comprises at least one beam (Fig. 2, 120), wherein said at least one blade is established on a microshutter platform comprising a translucent substrate, such as a glass wafer (Fig. 2, 105).

Regarding claim 29, Flanders discloses wherein said at least two positions comprise at least one position in which the at least one blade defines a blocking of at least one electromagnetic light transmission path (Figs. 4A and 4B).

Regarding claim 30, Flanders discloses wherein said blade is anchored on a micro-shutter platform (Fig. 2, 105) by anchoring means (Fig. 2, 120); said at least one transmission path extending through the micro shutter platform via said solid translucent transmission path (Col. 4, Lines 11-15); and said at least one transmission path guiding electromagnetic light through the shutter platform which is at least partly defined by means of a masking (Col. 5, Lines 9-19).

Regarding claim 32, Flanders discloses wherein the micro light modulator arrangement comprises a plurality of light modulators (Fig. 6).

Regarding claim 33, Flanders discloses at least one light transmission path (Fig. 2, 116) and at least one controllable shutter (Fig. 2, 114) arranged for modulation of light transmitted via said at least one light transmission path, at least a part of said light transmission path comprising a translucent modulator substrate (Col. 4, Lines 4-9), and said at least part of said light transmission path being an integral part of a substrate to which said at least one controllable shutter is anchored (Fig. 2); wherein said sealing comprises said at least a part of said light transmission path (Fig. 2, 105).

Regarding claim 34, Flanders discloses wherein said sealing further comprises at least one microlens arrangement (Fig. 2, 105).

Regarding claim 35, Flanders discloses wherein said sealing encloses said at least one controllable shutter (Fig. 105).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanders et al. (US 6,671,078).

Regarding claims 5-7, Flanders discloses the claimed invention except for the thickness of the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the appropriate thickness for the substrate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 24-26, Flanders discloses the claimed invention except for the material of the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the appropriate material of the substrate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 2-4, 12-16, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanders et al. (US 6,671,078) as applied to claim 1 above, and further in view of Nakagaki et al. (US 5,379,135).

Regarding claim 2, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose wherein said at least part of said light transmission path comprises a part of a micro lens arrangement. Nakagaki discloses wherein said at least part of said light transmission path comprises a part of a micro lens arrangement (Col. 9, Lines 27-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use micro lens arrangement in a light transmission path as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, micro lens arrangement is commonly used in order to create a light transmission path.

Regarding claim 3, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose wherein said microlens arrangement may be adapted for guiding incoming light through the light transmission path to at least one controllable shutter. Nakagaki discloses wherein said microlens arrangement may be adapted for guiding incoming light through the light transmission path to at least one controllable shutter (Col. 9, Lines 27-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a microlens arrangement to guide incoming light as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, microlens arrangement is commonly used in order to guide incoming light to desired location.

Regarding claim 4, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose wherein said microlens arrangement may be adapted for guiding outgoing light through the light transmission path from said at least one controllable shutter. Nakagaki discloses wherein said microlens arrangement may be adapted for guiding outgoing light through the light transmission path from said at least one controllable shutter (Col. 9, Lines 27-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use microlens arrangement to guide outgoing light as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, microlens arrangement is commonly used in order to guide outgoing light to desired location.

Regarding claim 12, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose said modulator comprising at least one microlens arrangement. Nakagaki discloses said modulator comprising at least one microlens arrangement (Col. 9, Lines 27-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use microlens arrangement in a modulator as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, microlens arrangement is commonly used in order to create a modulator.

Regarding claim 13, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose said microlens arrangement forming a light input of said modulator. Nakagaki discloses said microlens arrangement forming a light input of said modulator

(Fig. 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use microlens arrangement to form a light input as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, a microlens arrangement is commonly used in order to form a light input of a modulator.

Regarding claim 14, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose said modulator arrangement comprises light-emitting means arranged for transmission of light to an output of the modulator via at least one microlens arrangement and said at least one light transmission path. Nakagaki discloses said modulator arrangement comprises light emitting means arranged for transmission of light to an output of the modulator via at least one microlens arrangement and said at least one light transmission path (Col. 9, Lines 27-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a light-emitting means in a modulator arrangement as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, light-emitting means are commonly used in order to create a modulator arrangement.

Regarding claims 15 and 16, a modified Flanders, as detailed in claim 1 rejection above, discloses the claimed invention except for the light source of the light-emitting means. It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the appropriate light source of the light-emitting means, since it has been held to be within the general skill of a worker in the art to

select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 31, a modified Flanders, as detailed in claim 1 rejection above, fails to disclose wherein said light-emitting means is adapted for emitting visible light. Nakagaki discloses wherein said light-emitting means is adapted for emitting visible light (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use light-emitting means to emit visible light as taught by Nakagaki, with the modulator arrangement of Flanders, since as shown by Nakagaki, light-emitting means are commonly used in order to emit visible light.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Fang whose telephone number is 5712726013. The examiner can normally be reached on 10-8.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 5712722333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

A handwritten signature in black ink, appearing to read "Tim Thompson", with a stylized, flowing script.

**TIMOTHY THOMPSON
PRIMARY EXAMINER**

Art Unit: 2873

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.F.